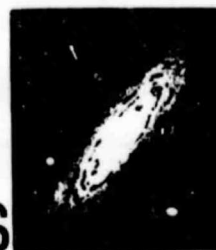


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World Data Center A For Rockets and Satellites

(NASA-TM-84027) DOCUMENTATION FOR THE
MACHINE-READABLE VERSION OF THE 0.2-Å
RESOLUTION FAR-ULTRAVIOLET STELLAR SPECTRA
MEASURED WITH COPERNICUS (NASA) 10 P
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Documentation for the Machine-Readable Version of the 0.2-Å Resolution Far-Ultraviolet Stellar Spectra Measured with Copernicus



September 1981

DOCUMENTATION FOR THE MACHINE-READABLE
VERSION OF THE 0.2-Å RESOLUTION FAR-ULTRAVIOLET STELLAR
SPECTRA MEASURED WITH *COPERNICUS*

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September 1981

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World Data Center A for Rockets and Satellites (WDC-A-R&S)
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SECTION 1 - INTRODUCTION

The machine-readable far-ultraviolet stellar spectra described in this document represent a subset comprising data for 60 O- and B-type stars observed by *COPERNICUS*. The tape contains data in the spectral region $\lambda\lambda 1000-1450 \text{ \AA}$ with a resolution of 0.2 \AA .

The data have been published in graphical and tabular form by Snow and Jenkins (1977). It is important that users of the tape consult this paper in order to familiarize themselves with the various aspects and anomalies of the data.

This document describes the magnetic tape version of the aforementioned data as distributed by the Astronomical Data Center. It is intended to enable users to read and process the tape without problems or guesswork, and should be distributed with any unmodified machine-readable version of the data.

SECTION 2 - TAPE CONTENTS

This tape contains data for 60 stars having 151 logical records and 2250 data points each. The first data point for each star begins at 1000 Å and the points step in 0.2-Å intervals to 1450 Å.

Record 1 contains the object identification in the first 16 bytes; the remainder of the record is blank (bytes 17-120).

Records 2-151 contain the spectral data, 15 data points per record. Each data point is of the form "Average Corrected Signal/Number of Observations" in format (I6,1H/,I1) or blank.

If a data point is blank, it was deleted from the originally published results because of an obvious flaw attributable to guidance errors or to overcorrection or undercorrection for particle background.

Since data fields can contain blanks and zeroes (see the data tables and associated graphical spectra in Snow and Jenkins 1977) which indicate that they should not be used, the number of observations field must be checked for zero before using a data point. One possible method for reading all data for a single star in file 1 consists of the following FORTRAN statements (the example is for a 32-bit machine and uses no buffering routines):

```
C      LAMBDA = array(2250) for the wavelength of each data point.
C      NAME = array(4) for the name.
C      DATAPT = array(2,2250) for the data.
C DATAPT(1,J)= the signal field of the data point ( J ).
C DATAPT(2,J)= the number of observations field of the data point ( J ).
C*****
      INTEGER NAME (4),DATAPT(2,2250)
      REAL LAMBDA(2250)
      DATA LAMBDA( 1 ) / 1000.0 /
      READ (1,10) NAME
10  FORMAT ( 4A4 )
      READ (1,30) ( ( DATAPT ( I, J ), I = 1,2 ), J = 1,2250)
30  FORMAT ( ( 15 ( I6, 1X, I1 ) ) )
C      Assign wavelength to each datapoint.
      DO 40 I = 2,2250
40  LAMBDA ( I ) = LAMBDA ( I - 1 ) + 0.2
```

The number of observations field (DATAPT(2,J)) can now be checked for zero to eliminate points having no data.

SECTION 3 - TAPE CHARACTERISTICS

The information in Table 1 is sufficient for a user to read the machine version of the *COPERNICUS* data. Information for the entire data set is given in the table, but tape parameters which are easily varied from installation to installation, such as block size (physical record length), blocking factor (number of logical records per physical record), total number of blocks, tape density and coding (EBCDIC, ASCII, etc.) are not included. This information should always be transmitted with tape copies of the data.

Table 1. Tape Characteristics. *COPERNICUS* Spectrometer Data

NUMBER OF TRACKS	9
NUMBER OF FILES	1
LOGICAL RECORD LENGTH (BYTES)	120
RECORD FORMAT	FB*
Total number of logical records	9060

*fixed block length

SECTION 4 - REMARKS, MODIFICATIONS AND REFERENCES

A magnetic tape containing the far-ultraviolet spectral data was received from Dr. Edward B. Jenkins in June 1979. This tape was formatted as a print tape having the record structure and spacing of the printed pages in the Snow and Jenkins (1977) paper. Due to programming complications arising from the above format, which contains blank lines and data fields for many stars within each logical record, it was decided to rewrite the tape to a more suitable format for data analysis and plotting purposes. Thus, the tape was converted at the Astronomical Data Center to the format described in this document; the data fields and slash characters remain identical to those used in the published tables.

REFERENCES

Snow, T. P. Jr. and Jenkins, E. B. (1977). *Astrophys. J. Suppl.* 33, 269.

SECTION 5 - SAMPLE LISTING

The sample listing given on the following pages contains logical data records exactly as they are recorded on the tape. Records from the beginning and end of the file are listed. The beginning of each record and bytes with that record are indicated by the column heading index across the top of each page.

TAPE FILE NAME: COPERNICUS UV SPECTRA

SC8036 1 79 10

TAPE FILE 4

RECORD LENGTH 120 BYTES

INPUT VOLSER WTS001

[illegible][illegible]

